Overview
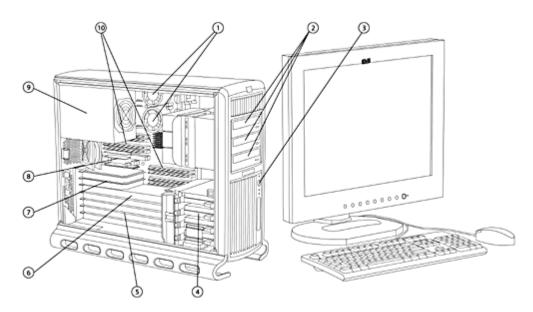

1. Processor(s)
2. Three 5.25" Optical drive bays
3. On/Off Button
4. Hard disk drives
5. One full-length AGP 8x Slot

6. Four full-length PCI
7. Two half-length PCI
8. 2-Way Motherboard
9. Power supply
10. Memory DIMMs

At A Glance

- Up to two HP PA-8900 dual core processor modules (2-way standard; 4-way optional)
    - 2 or 4-way 1.0 GHz PA-8900 with 3.0 MB L1 cache (1.5MB per core)
    - 2 or 4-way 1.0 GHz PA-8900 with 3.0 MB L1 cache (1.5 MB per core) and 64 MB shared L2 cache
    - 2 or 4-way 1.1 GHz PA-8900 with 3.0 MB L1 cache (1.5 MB per core) and 64 MB L2 cache
- HP zx1 chipset with 400 MHz system bus
    - 6.4 GB/s effective processor bandwidth
    - 8.6 GB/s memory bandwidth
    - 3.5 GB/s I/O bandwidth
- 80 ns memory access latency
- Enterprise-class operating systems: HP-UX 11i v1
- ECC PC2100 DDR-266 memory, expandable to 32 GB
- Four Internal 3 1/2 inch drive bays; up to 1.2TB of SCSI or 160GB IDE hard drive storage
- Integrated 10/100/1000 Mbps Base-T Ethernet
- AGP 8X Pro 150 watts max power graphics interface
- Six PCI slots*
- Three external bays 5 1/4 inch drive bays
- DVD-ROM, DVDRW or CD-RW Optical Drive
- Full Independent Software Vendor (ISV) certification and support for leading technical applications
- Protected by HP Services, including a one-year limited warranty. Certain restrictions and exclusions apply.

NOTE: Accessory card slots have various configurations. See details in "Standard Features" area.

Standard Features

Processor	Up to two 2-way (dual core) HP PA-8900 processor modules (1.0 or 1.1 Ghz)

Operating System	HP-UX 11i version 1 TCOE (Technical Computing Operating Environment)
	HP-UX 11i version 1 MTOE (Minimal Technical Operating Environment)

Cache Memory	3.0 MB L1 on-chip cache (1.5 MB per processor core)
	PA-8900 – 64 MB L2 cache (optional shared)

Memory	Maximum of 32 GB ECC PC2100 DDR-266 memory (8 DIMMs)

Network Controller	Integrated 10/100/1000 Mbps Base-T Ethernet

Removable Storage	48X/32X/48X CD-RW Drive
	16X/48X DVD-ROM with +R and –R Read
	16X DVD+RW Drive

Expansion Slots	I/O (Total)	Seven available slots
	PCI – 32-bit/33 MHz	2 half-length 3.3V 32-bit/33 MHz PCI
	PCI – 64-bit/33 MHz	1 full-length 3.3V 64-bit/33 MHz PCI
	PCI – 64-bit/66 MHz	2 full-length 3.3V 64-bit/66 MHz PCI-X
	PCI – 64-bit/133 MHz	1 full-length 3.3V 64-bit/133 MHz PCI-X
	AGP 8X Pro	1 slot – 150W

Expansion Bays	(Total/Available)	7 total/7 available
	Internal	Four 3.5-inch bays
	External	Three accessible 5.25-inch bays

Storage	Removable Media	DVD-ROM, DVD+RW, or CD-RW Drive
	Hard Drive	80 GB Ultra/ATA100 IDE Drive (7200 rpm)
		73, 146 or 300 GB Ultra320 SCSI (10K rpm)
		73 GB Ultra 320 SCSI (15K rpm)
	Drive Controller(s)	Integrated Ultra320 SCSI controller
		Integrated Ultra/ATA100 IDE controller

Standard Features

Interfaces	USB 1.1	Five (2 front, 3 rear)
	Serial	Two 9-pin DIN connectors (rear)
	Ultra320 SCSI	Internal and optional external (rear) connector
	Network interface	One RJ-45 connector (rear)
	Microphone Jack	1 (optional audio card)
	Line-In Jack	1 (optional audio card)
	Line-Out Jack	1 (optional audio card)

Graphics –
One of the following

ATI FireGL T2-128 (dual display)

ATI FireGL X3-256 (dual display)

Audio

16-bit stereo full-duplex – uses half-length slot (optional card)

Input Devices

HP 104/105 key keyboard, available in 21 localized layouts

HP three-button optical mouse

HP three-button optical scroll mouse

HP SpaceBall 3D Input Device

HP SpaceMouse 3D Input Device

HP SpacePilot 3D Input Device

Power Supply

650W maximum output

Service and Support

Standard limited warranty: 1-year, next business day, onsite
Hardware support upgrades available: 3 Years Next Business Day Onsite, 3 Years Same Business Day Onsite, and 3 Years 24 x7 Onsite.

NOTE: Certain restrictions and exclusions apply. Consult the customer support center for details.

Configure-to-order Options (custom configurations)

When buying a basic system, you have many configuration options. Base System includes Ultra320 SCSI, 10/100/1000BT LAN, 2 serial, 5 USB, 1 AGP-8X slot, 3 PCI slots, 3 PCI-X slots, and all required power cords. Base system does not include processor, RAM, disks or graphics.

HP c8000 Workstation base system Processor	2-way 1.0 GHz PA-8900 with 3 MB L1 cache (1.5 MB per processor core) 2-way 1.0 GHz PA-8900 with 3 MB L1 cache and 64 MB L2 cache 2-way 1.1 GHz PA-8900 with 3 MB L1 cache and 64 MB L2 cache
Second Processor	2-way 1.0 GHz PA-8900 with 3 MB L1 cache and 64 MB L2 cache 2-way 1.1 GHz PA-8900 with 3 MB L1 cache and 64 MB L2 cache
Operating System	HP-UX 11i version 1 TCOE (Technical Computing Operating Environment) HP-UX 11i version 1 MTOE (Minimum Technical Operating Environment)
Graphics Card	ATI FireGL T2-128 (128MB, dual display, AGP 8X) ATI FireGL X3-256 (256 MB, dual display, AGP 8X)
Memory	1 GB PC2100 DDR-266 SDRAM memory kit (2x512MB DIMMs) 2 GB PC2100 DDR-266 SDRAM memory kit (2x1GB DIMMs) 4 GB PC2100 DDR-266 SDRAM memory kit (2x2GB DIMMs) 8 GB PC2100 DDR-266 SDRAM memory kit (2x4GB DIMMs)
Monitors	HP L1955 19-inch TFT Flat Panel Display - Analog/Digital HP LP2065 20-inch TFT Flat Panel Display - Analog/Digital HP LP2465 24-inch TFT Widescreen Flat Panel Display (1920x1200 resolution)
Internal hard disks (minimum 1)	**Ultra320 SCSI Drives** (max. 4) 73 GB Ultra320 SCSI 10,000 rpm 146 GB Ultra320 SCSI 10,000 rpm 300 GB Ultra320 SCSI 10,000 rpm 73 GB Ultra320 SCSI 15,000 rpm **UltraATA IDE Drives** (max. 2) 80 GB Ultra/ATA100 IDE Drive (7200 rpm)
Storage Controllers	External Ultra320 SCSI Connector Option Ultra320 SCSI Adapter for HP-UX, 2-channel Fibre Channel Adapter, 2GB, for HP-UX

Configure-to-order Options (custom configurations)

Optical Drive	16X DVD-ROM Drive
	16X DVDRW Drive
	48X CD-RW Drive

Rack and Tower Options (must order 1)	Workstation Rack Kit
	Workstation Tower Kit

After-Market Options/Standalone Accessories

Operating Systems	HP-UX 11i version 1 TCOE (Technical Computing Operating Environment)	B6821AA
	HP-UX 11i version 1 MTOE (Minimal Technical Operating Environment)	B6845AA

2nd Processor	2-way 1.0 GHz PA-8900 with 3 MB L1 cache and 64 MB L2 cache	AB675A
	2-way 1.1 GHz PA-8900 with 3 MB L1 cache and 64 MB L2 cache	AB676A
	NOTE: The second processor must be the same as the first.	

Memory (DDR-SDRAM)	1 GB (2 x 512 MB) PC2100 DDR SDRAM Upgrade Kit	A8087B
	2 GB (2 x 1 GB) PC2100 DDR SDRAM Upgrade Kit	A8088B
	4 GB (2 x 2 GB) PC2100 DDR SDRAM Upgrade Kit	A8089B
	8 GB (2 x 4 GB) PC2100 DDR SDRAM Upgrade Kit	AB662A
	NOTE: Memory sold in pairs.	

Graphics	ATI FireGL T2-128 (128 MB, dual display, AGP 8X)	AB638A
	ATI FireGL X3-256 (256 MB, dual display, AGP 8X)	AB668A

Optical Drives	48X CD-RW Drive	A8683B
	16X DVD-ROM Drive	A8682B
	16X DVDRW Drive	AB615A

Hard Drives	**Ultra320 SCSI Drives** (max. 4)	
	73 GB Ultra320 SCSI 10,000 rpm	AB628A
	146 GB Ultra320 SCSI 10,000 rpm	AA614A
	300 GB Ultra320 SCSI 10,000 rpm	AB663A
	73 GB Ultra320 SCSI 15,000 rpm	A7214B
	UltraATA IDE Drives (max. 2)	
	80 GB Ultra/ATA100 IDE Drive (7200 rpm)	AB680A
	Conversion Kit	
	SCSI Cable Conversion Kit; IDE to SCSI	AB640A
	IDE Cable Conversion Kit; SCSI to IDE	AB641A

Storage Controllers	Ultra320 SCSI Adapter for HP-UX, 2-channel	A7173A
	PCI 2GB Fibre Channel Adapter	A6795A
	External SCSI Cable Connector (enables 68-pin high density SCSI connector on rear panel of workstation)	AB642A

After-Market Options/Standalone Accessories

Backup Devices	HP DAT40i Internal DDS4 tape drive	C5686B
	HP DAT40e External DDS4 tape drive	C5687C
	HP DAT72i Internal DAT72 tape drive	Q1522A
	HP DAT72e External DAT72 tape drive	Q1523A
	HP Ultrium 232 Tape Drive Internal	DW064A
	HP Ultrium 232 Tape Drive External	DW065A

Communications	1000BaseTX PCI LAN Adapter for HP-UX (Available 0D1 only. For field add-on/standalone, use A6825A)	A6825A
	1000BaseSX (Fibre) PCI LAN Adapter for HP-UX	A6847A
	PCIX 4-Port 1000 Base-TX LAN Adapter	AB545A
	PCI 2GB Fiber Channel Adapter	A6795A
	8-Port Serial MUX Adapter	A6748A
	2-Port Serial Adapter	AD278A

Software Applications and Compilers	HP C++/ANSI C Developers Bundle	B9007AA

Rack Options	c8000 Tower to Rack Conversion Kit	AB626A
	c8000 Rack to Tower Conversion Kit	AB625A

Input Devices	Keyboard Kit, USB, PC-104/105, Carbon black – Includes USB keyboard and 3-button mouse. Must choose localization option	A4983D
	USB scroll mouse	064
	Delete keyboard	053
	Spaceball 5000, Serial Interface	AB602A
	SpaceMouse, Serial Interface	AB677A
	HP SpacePilot USB 3D Input Device	AB681A

Other	System C13 power cord only	A4199A
	System C13 and monitor C13 power cords	A4199B
	Remote Workstation Receiver Software Module	DM498A

After-Market Options/Standalone Accessories

Monitors	HP L1955 19-inch TFT Flat Panel Display - Analog/Digital	PD974A5 (Americas)
	HP LP2065 20-inch TFT Flat Panel Display - Analog/Digital	EF227A5 (Americas) EF227A4 (EMEA, APJ)
	HP LP2465 24-inch TFT Widescreen Flat Panel Display	EF224A5 (Americas) EF224A4 (EMEA, APJ)

NOTE: AssetControl features are accessible with HP workstations featuring Intelligent Manageability.

Memory

ECC Registered PC2100 DDR-266 memory
Memory must be installed in pairs of the same size. Memory upgrade kits come in pairs.
This chart does not represent all possible memory configurations. Peak bandwidth: up to 8.5 GB/s.
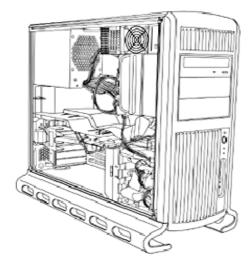
MINIMUM MEMORY
1 GB (2 x 512 MB)

MAXIMUM MEMORY
32 GB (8 x 4 GB)

Memory		Slot 0A	Slot 0B	Slot 1A	Slot 1B	Slot 2A	Slot 2B
Minimum	1 GB	512 MB	512 MB				
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB
Memory		**Slot 3A**	**Slot 3B**				
Minimum	1 GB						
Maximum	32 GB	4 GB	4 GB				

Storage

Drive Bay Locations

Drive Support

	Quantity Supported	Position Supported	Controller
Optical Drives			
DVD-ROM Drive	Up to 2	1, 2, 3	Integrated EIDE
CD-RW Drive	Up to 2	1, 2, 3	Integrated EIDE
DVDRW Drive	Up to 1	1, 2, 3	Integrated EIDE
Maximum 3 Optical Drives supported.			

	Quantity Supported	Position Supported	Controller
Hard Drives			
Ultra320 SCSI Drives			
1-inch	Up to 4	4, 5, 6, 7	68-pin interface connector plus four-pin standard power connector
73 GB Ultra320 SCSI (10K rpm)			
146 GB Ultra320 SCSI (10K rpm)			
300 GB Ultra320 SCSI (10K rpm)			
73 GB Ultra320 SCSI (15K rpm)			
UltraATA IDE Drives	Up to 2	4, 5, 6, 7	**NOTE:** This configuration reduces the number of optical drives supported to a maximum of two.
80 GB Ultra/ATA100 IDE Drive (7200 rpm)			

Maximum Storage Capacity	1.2 TB (SCSI) 160 GB (IDE)

Technical Specifications

System Unit	Tower Dimensions	Height	19.3 in (490.2 mm)
		Depth	22.5 in (571.4 mm)
		Chassis Width	8.0 in (203.2 mm)
		Pedestal Width	11.3 in (287.0 mm)
	Weight (tower configuration)	Minimum Tower Configuration	49.5 lb (22.5 kg)
		Maximum Tower Configuration	62.5 lb (28.3 kg)
	Rack Dimensions (HxWxD)	Chassis Height	8.0 in (203.2 mm)
		Front Panel Height	8.6 in (219.0 mm)
		Depth	22.4 in (568.9 mm)
		Chassis Width	16.7 in (424.2 mm)
		Front Panel Width	19.0 in (482.6 mm)
	EIA Units	5U (8 units possible per 2 meter rack)	
	Weight (rack configuration)	Minimum Rack Configuration	48.3 lb (21.9 kg)
		Maximum Rack Configuration	61.3 lb (27.8 kg)
	Power Supply	Input current (auto-ranging)	8.7A max @ 100V, 4.4A max @ 200V
		Line Frequency	50 - 60 Hz
		Maximum Power Input	650 W
	Temperature	Operating	41° to 95° F (5° to 35° C)
		Non-operating	-4° to 158° F (-20° to 70° C)
	Maximum Altitude (non-pressurized)	Operating	10,000 ft (3,048 m)
		Non-operating	15,000 ft (4,572 m)

Technical Specifications - Controllers and Hard Drives

Ultra320 Embedded Dual Channel SCSI Controller	**Number of supported devices**	15 per channel		
	Interface protocol	Supports Fast, Ultra, Ultra2, Ultra160 and Ultra320		
	Host bus transfer rate	Up to 320 MB/s		
	SCSI data transfer rate	Up to 320 MB/s		
	Bus width	64-bit		
	Internal connectors	Two 68-pin high density LVD SCSI		
	External connector	Optional 68-pin HD SCSI - 16-bit SE or LVD		

Ultra320 SCSI Hard Drives	**73 GB**	**Capacity**	73,407,865,856 bytes	
		Height	1.0 in (2.5 cm)	
		Width	3.5 in (8.9 cm)	
		Interface	68 pin LVD SCSI	
		Synchronous Transfer Rate (Maximum)	320 MB/s	
		Buffer	8 Mbytes	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.3 msec
			Average	<4.5 msec
			Full-Stroke	<11.0 msec
		Rotational Speed	10,000 rpm	
		Logical Blocks	143,374,738	
		Operating Temperature	40° to 130° F (5° to 55° C)	
	146 GB	**Capacity**	146,815,737,856 bytes	
		Height	1.0 in (2.5 cm)	
		Width	3.5 in (8.9 cm)	
		Interface	68-pin LVD SCSI	
		Synchronous Transfer Rate (Maximum)	320 MB/s	
		Buffer	8 Mbytes	
		Seek Time (typical reads, includes controller overhead, including settling)	**Single Track**	0.3 msec
			Average	<4.5 msec
			Full-Stroke	<11.0 msec
		Rotational Speed	10,000 rpm	
		Logical Blocks	286,749,488	
		Operating Temperature	40° to 130° F (5° to 55° C)	

Technical Specifications - Controllers and Hard Drives

300 GB	Capacity	300,000,000,000 bytes	
	Height	1.0 in (2.5 cm)	
	Width	3.5 in (8.9 cm)	
	Interface	68-pin LVD SCSI	
	Synchronous Transfer Rate (Maximum)	320 MB/s	
	Buffer	8 Mbytes	
	Seek Time (typical reads, includes controller overhead, including settling)	Single Track	0.3 msec
		Average	<4.5 msec
		Full-Stroke	<11.0 msec
	Rotational Speed	10,000 rpm	
	Logical Blocks	585,937,500	
	Operating Temperature	40° to 130° F (5° to 55° C)	

73 GB	Capacity	73,407,865,856 bytes	
	Height	1 in (2.5 cm)	
	Width	3.5 in (8.9 cm)	
	Interface	68 pin LVD SCSI	
	Synchronous Transfer Rate (Maximum)	320 MB/s	
	Buffer	8 Mbytes	
	Seek Time (typical reads, includes controller overhead, including settling)	Single Track	0.3 msec
		Average	<3.5 msec
		Full-Stroke	<9.0 msec
	Rotational Speed	15,000 rpm	
	Logical Blocks	143,374,738	
	Operating Temperature	40° to 130°F (5° to 55° C)	

ATA/100 Hard Drive	80 GB	Capacity	80 GB	
		Dimensions (H x W)	1.0 x 3.5 in (2.5 x 8.9 cm)	
		Interface	Ultra ATA/100	
		Synchronous Transfer Rate (Maximum)	100 MB/s	
		Seek Time (typical reads, includes controller overhead, including settling)	Single Track	0.8 ms
			Average	11.0 ms
			Full-Stroke	19.0 ms
		Rotational Speed	7,200 rpm	
		Logical Blocks	156,301,488	
		Operating Temperature	41° to 131°F (5° to 55°C)	

Technical Specifications - Graphics

ATI FireGL T2-128 Graphics Card		
	Form Factor	ATX
	Graphics Controller	ATI FGL 9600 Visual Processing Unit (VPU)
	Bus Type	AGP 8X Version 3.0 compliant
	DAC	Dual 400 MHz/10-bit per component
	Memory	128-MB DDR SDRAM unified frame buffer, Z-buffer and Texture storage
	Connectors	DVI-I and VGA monitor outputs
	Slots required	Occupies 1 physical slot in the system
	Dimensions	Single AGP/ATX card. 9.07 x 4.25 in (230.28 x 107.96 mm)
	Multi-monitor support	DVI-I and DB-15 connectors support dual display, maximum HP-UX supported resolution of single display 1920 x 1200, maximum dual display 2560 x 1024
	Additional product features	128-MB DDR SDRAM unified frame buffer, Z-buffer and Texture storage
		64-KB BIOS Serial Flash ROM, reprogrammable by SW, 3.3V only, no Jumpers
		2D and 3D acceleration provided for 16-bit and 32-bit RGB models
		Hardware cursor with full color alpha channel
		32-bit (24+8-bit stencil) Z buffer
		Bus mastering support for 2D/3D display lists and local memory vertex list execution
		Hardware lighting support for 8 light sources
		Bilinear and Trilinear texturing
		Cubic Environment Mapping
		Projective Texture and 3D Texture support
		Full Scene Anti-Aliasing (FSAA) support with up to 6 subsamples
		Video Timings compliant with VESA DMT 1.0 and VESA GTF 1.0 specifications
	AGP 4x/8x Version 3.0 compliant including:	Sideband Addressing AGP Texturing (Execute Mode) AGP Read and AGP Write Support 8X Fast write support
	FGL 9600 GPU featuring:	VGA controller supporting full standard feature set
		2D Engine with 128-bit datapath processing multiple pixels per clock
		PIXEL TAPESTRY III, 3D rendering engine utilizing 2 parallel pipelines with two texture blending units each capable, of handling up to 8 texels in a single pass, delivering 2.4 Gigatexels/s fill rate
		CHARISMA ENGINE III, geometry unit utilizing 4 vertex processing engines, capable of executing two instructions per clock cycle each, thus yielding up to 200 million transformed, clipped and lit triangles per second.
		Dual independent display controllers with 4K x 4K address space each 128-bit external frame buffer interface
	Supported graphics APIs	OpenGL 1.2 with immediate mode support for all OGL primitive types
	Available graphics drivers	HP-UX - see: http://www.hp.com/workstations/support **NOTE:** This Web site is available in English only.

Technical Specifications - Graphics

ATI FireGL X3-256 Graphics Card		
	Form Factor	ATX
	Graphics Controller	ATI FireGL Visual Processing Unit (VPU)
	Bus Type	AGP 4x/8x Version 3.0 compliant
	RAMDAC	Dual 400 MHz/10-bit per component
	Memory	256-MB DDR SDRAM unified frame buffer, Z-buffer and Texture storage
	Connectors	Dual DVI-I analog/digital monitor outputs
	Slots required	Occupies 1 physical slot in the system
	Dimensions	Single AGP/ATX card. 9.07 x 4.25 in (230.28 x 107.96 mm)
	Multi-monitor support	Maximum HP-UX supported resolution of single display 1920 x 1200 analog or digital. Maximum dual display 3840 x 1200.
	Additional product features	256-MB DDR SDRAM unified frame buffer, Z-buffer and Texture storage
		64-KB BIOS Serial Flash ROM, reprogrammable by SW, 3.3V only, no Jumpers
		2D and 3D acceleration provided for 16-bit and 32-bit RGB modes
		Hardware cursor with full color alpha channel
		32-bit Z buffer, 8-bit stored alpha and 8-bit Stencil planes
		Bus mastering support for 2D/3D display lists and local memory vertex list execution
		Hardware lighting support for up to 8 lights
		Bilinear and Trilinear texturing
		Cubic Environment mapping
		Projective Texture and 3D Texture support
		Full Scene Anti-Aliasing (FSAA) support with up to 6 subsamples
		Per pixel quad buffering on all screen resolutions
		VESA compliant Stereoscopic Interface on MiniDin Connector
		Video Timings compliant with VESA DMT 1.0 and VESA GTF 1.0 specifications
		DDC2B+ Monitor support
	AGP 4x/8x Version 3.0 compliant including:	Sideband Addressing AGP Texturing (Execute Mode) AGP Read and AGP Write Support 8X Fast write support
	FGL Parallel Processing VPU featuring:	VGA controller supporting full standard feature set
		256-bit external frame buffer interface providing memory bandwidth of 22 GB per second
		6 parallel geometry engines, 12 parallel pixel pipelines, 128-bit full floating point precision
		Programmable pixel and vertex shaders with 16 textures per pass
		2X/4X/6X full scene anti-aliasing modes
	Supported graphics APIs	OpenGL 1.2 with immediate mode support for all OGL primitive types

Technical Specifications - Monitors

HP L1955 Flat Panel Monitor	Panel	Type	Active matrix, thin film transistor (TFT)
		Viewable Image Area (diagonal)	19 in (48.25 cm) maximum viewable
		Screen Opening (WxH)	14.9 x 12.0 in (38.0 x 30.5 cm)
		Viewing Angle (typical)	176 degrees horizontal/176 degrees vertical (10:1 minimum contrast ratio)
		Brightness (typical)	Up to 250 nits (cd/m^2)
		Contrast Ratio (typical)	Up to 1000:1 (typical)
		Response Rate (typical)	<16 ms (typical rise + fall)
		Pixel Pitch	0.294 mm
	Video/Other Inputs	Plug and Play	Yes (supports VESA DDC2B; PC2001 compliant)
		Self Powered USB 2.0 Hub	One upstream, four downstream ports (cable included)
		Input Signal	Two connectors: one 15-pin mini D-sub analog VGA; and one DVI-I (VGA analog or digital)
		Input Impedance	75 ohms ± 2%
		Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green (activated through on-screen display)
		Video Cable	VGA to VGA, DVI-D to DVI-D, and DVI-I to VGA
		Video Cable Length	78 in (2.0 m)
	Signal Interface/ Performance	Horizontal Frequency	30 to 82 kHz
		Vertical Frequency	56 to 75 Hz
		Native Resolution	1280 x 1024 @ 75 Hz analog
			1280 x 1024 @ 60 Hz digital
		Maximum Resolution (Analog)	1280 x 1024 @ 75 Hz analog
		Maximum Resolution (Digital)	1280 x 1024 @ 75 Hz digital
		Preset VESA Graphic Modes (non-interlaced)	640 x 480 @ 60 Hz, 72 Hz, 75 Hz
			720 x 400 @ 70 Hz
			800 x 600 @ 60 Hz, 72 Hz, 75 Hz
			1024 x 768 @ 60 Hz, 70 Hz, 75 Hz
			1280 x 1024 @ 60 Hz, 75 Hz
		Preset MAC Mode	832 x 624 @ 75 Hz
			1152 x 870 @75 Hz
		Preset VGA Mode	640 x 480 @ 60 Hz, 72 Hz
		Preset SUN Mode	1152 x 900 @ 76 Hz
		Fail Safe Mode	Yes (limits out of range signal messages)
		Maximum Pixel Clock Speed	140 MHz

Technical Specifications - Monitors

	User Programmable Modes	Yes, 15
	Anti-Glare	Yes
	Anti-Static	Yes
	AssetControl	Yes (accessible on HP Compaq Business Desktops featuring Intelligent Manageability)
	Default Color Temperature	Yes (6500k, 9300k, SRGB, Custom User)
On Screen Display (OSD) **Controls**	**Buttons or Switches**	Power on/off; 3-button OSD; second level OSD buttons include dual-input switch, dedicated auto adjust switch
	Languages	English, Spanish, French, German, Italian, Japanese, Simplified Chinese
	User Controls	Size and Positioning
		Contrast
		Brightness
		Clock, Clock Phase
		Selectable Color Temperature
		Serial Number
		Mode Displayed
		Sleep Timer
		Input Selection
		Factory Reset
		Individual Color Contrast
		Full-screen Resolution
Power	**Power Supply**	Auto-ranging, 90 to 265 VAC; internal power supply
	Input Power	100 ~ 240 VAC
	Nominal Current	1.5 A maximum
	Frequency	50 ~ 60 Hz
	Average	33 watts when displaying standard office software
	Typical Power Consumption	< 40 watts
	Maximum	< 60 watts
	Power Saving	< 2 watts
	Off Mode	0 watts (when master power switch is in the off position)
	Power Cable Length	70 in (1.8 m); non-captive

Technical Specifications - Monitors

Mechanical	Dimensions (H x W x D)	**Unpacked with stand** 16.8 (minimum) to 22.3 (maximum) x 15.9 x 8.3 in (42.7 (minimum) to 56.6 (maximum) x 40.4 x 21.1 cm)
		Base Area (Footprint D x W) 8.3 x 12.2 in (21.1 x 30.9 cm)
		Panel only (without stand) (H x W x D) 13.2 x 15.9 x 3.1 in (33.5 x 40.4 x 7.9 cm)
	Weight	**Unpacked with stand** 16.5 lb (7.5 kg)
		Unpacked without stand 10.5 lb (4.75 kg)
		Packaged 23.5 lb (10.7 kg)
	Bezel Width	13 mm left and right, 14 mm top, and 15 mm bottom
	Tilt Range	-5° to +35°
	Swivel Range	± 50° horizontal swivel
	Height Adjustable	Yes (5.1 in/13 cm adjustment range)
	Pivot Rotation	Yes, 90 °
	Base	Ships detached and is removable after installation
Environmental	Temperature – Operating	41° to 95° F (5° to 35° C)
	Temperature – Non-operating	-4° to 140° F (-20° to 60° C)
	Humidity – Operating	20% to 80%
	Humidity – Non-operating	5% to 95%
	Altitude – Operating	0 to 13,000 ft (0 to 4,000 m)
	Altitude – Non-operating	0 to 40,000 ft (0 to 12,192 m)
Options	Desktop Access Center	Features integrated microphone/headset jacks, dual function headset for phone/PC support, a MultiBay slot for adding an optical drive (sold separately), and four USB ports for easy integration of third-party digital solutions. Sold separately; part number DK985A. For more information, refer to the HP Desktop Access Center QuickSpecs.
	HP Flat Panel Speaker Bar	Powered directly by the monitor, seamlessly attaches to the monitor's bezel to bring full multimedia support to select HP flat panel monitors. Features dual speakers with full sound range and external jack for headphones. Sold separately, part number PF804AA. For more information, refer to the HP Flat Panel Speaker Bar QuickSpecs.

Technical Specifications - Monitors

Other		**Accessories Included**	VGA to VGA cable, DVI-D to DVI-D cable, DVI-I to VGA cable, USB cable, user CD-ROM with Pivot Pro software
		Software	Pivot Pro software from Portrait Displays, Inc. interacts with your PC's native graphics driver to enable seamless portrait screen redraws with a simple mouse-click or keyboard command. Pivot Pro supports 90-degree portrait and landscape views. Language support is available in English, Japanese, French, German, Spanish, Italian, and Traditional and Simplified Chinese.
		Software	HP Display LiteSaver feature lets you schedule Sleep mode at preset times to help protect the display against image retention, drastically lower power consumption and energy costs, and extend the lifespan of the monitor.
		User Guide Languages	English
		Warranty Languages	English
		Color	Carbonite, two-tone carbonite and silver (EMEA only)
		VESA Mounting	Yes (swing arm/wall mount not included); base must be removed for mounting options)
		VESA External Mounting	Yes (standard 4 hole pattern, 100 mm)
		Kensington Lock-ready	Yes
	Certification and Compliance		Australian ACA Approval, Canadian Requirements/CSA, CE Marking, China CCIB/CCEE Approval, CISPR Requirements, Eastern European Approvals, Energy Star Compliant, FCC Approval, German Ergonomic (TUV and GS Mark), ISO 13406-2 Compliant (Pixel Defect Guidelines), Mexican NOM Approval, MPR-II Compliant, PC2001 Compliant, PC99 Certified, S. Korean MIC Approval, Taiwan BSMI Approval, TCO 99 or 03 depending on region (emissions, ergonomics, environment), TUV-Ergo, UL Listed, VCCI Approvals, Microsoft® Windows® Certification
	Compatibility		VESA Video Signal Standard (VSIS) Compliant video cards have been tested and proven compatible for use with the HP L1955 Flat Panel Monitor. Recommended for use with HP products.
	Service and Warranty		Limited three-year parts and repair labor, service provider labor, and on-site service. Next Business Day advanced exchange direct replacement service available during warranty period. Certain restrictions and exclusions apply. For details, contact HP Customer Support.
HP L2065 Flat Panel Monitor	**Panel**	**Type**	20-inch Active Matrix TFT (thin film transistor)
		Viewable Image Area (diagonal)	20.1 in (51 cm)
		Screen Opening (W x H)	16.2 x 12.17 in (41.1 x 30.9 cm)

Technical Specifications - Monitors

	Viewing Angle (typical)*	Up to 178° horizontal/178° vertical (10:1 minimum contrast ratio)
	Brightness (typical*	Up to 300 nits (cd/m2)
	Contrast Ratio (typical)*	Up to 800:1
	Response Rate (typical)*	8 ms (gray to gray), 16 ms (rise + fall)
	Pixel Pitch	0.255 mm
	Backlight Lamp Life (to half brightness)	45K hours

*All specifications are provided by the component manufacturers. Performance specifications represent the highest specification of all HP's component manufacturers' typical level specifications for performance. Actual performance may vary either higher or lower.

On Screen Display (OSD) **Controls**	**Buttons or Switches**	Input select, auto adjust/OSD up, OSD down, OSD menu select, power
	Languages	English, French, German, Spanish, Italian, Dutch, and Japanese
	User Controls	Brightness, contrast, positioning, color temperature, individual color control, serial number display, full screen resolutions, clock, clock phase, input selection, image control (including scaling), and factory reset
Signal Interface/ Performance	**Horizontal Frequency**	30 to 94 kHz (VGA input); 30 to 92 KHz (DVI input for modes with pixel clock less than 157 MHz)
	Vertical Frequency	48 to 85 Hz (VGA input); 30 to 92 Hz (DVI input) (for modes with pixel clock less than 162 MHz)
	Graphics Controller	Pixelworks PW171
	Native Resolution	1600 x 1200 @ 60 Hz, 75 Hz (analog input)
	Preset VESA Graphic Modes (non-interlaced)	1280 x 1024 @ 60 Hz, 75 Hz, and 85 Hz
		1280 x 960 @ 60 Hz
		1152 x 900 @ 66 Hz
		1024 x 768 @ 60 Hz, 75 Hz, and 85 Hz
		800 x 600 @ 60 Hz, 85 Hz
		640 x 480 @ 60 Hz, 75 Hz, and 85 Hz
	Text Mode	720 x 400 @ 70 Hz
	Mac Mode	1152 x 870 @ 75 Hz and 832 x 624 @ 75 Hz
	Sun Mode	1152 x 900 @ 66 Hz
	Maximum Pixel Clock Speed	202 MHz (VGA input); 162 MHz (DVI input)
	User Programmable Modes	Yes, 10
	Anti-Glare	Yes
	Anti-Static	Yes
	Default Color Temperature	6500 K

QuickSpecs

Technical Specifications - Monitors

Video Input	**Plug and Play**	Yes
	Self Powered USB 2.0 Hub	One upstream, four downstream ports (cable included)
	Input Signal	Two DVI-I connectors (dual VGA analog or dual digital input possible)
	Input Impedance	75 ohms ± 10%
	Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green
	Video Cable	Two VGA to DVI-I; two DVI-D to DVI-I
	Video Cable Length	5.9 ft (1.8 m)
Power	**Input Power**	Auto-Ranging, 90 to 132 VAC and 195 to 265 VAC; internal power supply, 50 Hz/60 Hz
	Frequency	47.5 to 63 Hz
	Typical Power Consumption	55 watts (without USB ports); 70 watts (USB ports fully loaded)
	Maximum	< 75 watts
	Power Saving	< 2 watts
	Power Cable Length	5.9 ft (1.8 m)
Mechanical	**Dimensions** (H x W x D) Unpacked w/stand	16.7 to 21.8 x 17.4 x 8.67 in (42.5 to 55.5 x 44.3 x 22.0 cm)
	Unpacked w/o stand (head only)	13.58 x 17.4 x 3.42 in (34.5 x 44.3 x 8.7 cm)
	Packaged	11.77 x 22.2 x 16.77 in (29.9 x 56.4 x 42.6 cm)
	Weight Unpacked	With stand: 20.28 lbs (9.2 kg); Without stand: 12.65 lbs (5.75 kg)
	Packaged	26.3 lb (11.95 kg)
	Tilt Range	-5° to + 25° vertical tilt
	Swivel Range	-45° to + 45°
	Height Adjustable	Yes, range 5.1 in (13.0 cm)
	Pivot Rotation	Yes
	Base	Detachable, ships attached

Technical Specifications - Monitors

Environmental	**Temperature – Operating**	46° to 95° F (10° to 35° C)
	Temperature – Non-operating	6° to 140° F (-10° to 60° C)
	Humidity – Operating	20% to 80% non-condensing
	Humidity – Non-operating	5% to 85%
	Altitude – Operating	+12,000 ft (3,657.6 m)
	Altitude – Non-operating	+40,000 ft (12,192 m)
Options	**HP Silver Flat Panel Speaker Bar - Part number: EE418AA**	Powered directly by the monitor or the PC, the Speaker Bar seamlessly attaches to the monitor's lower bezel to bring full audio support to select HP flat panel monitors. Features include dual speakers with full sound range and external jack for headphones. Sold separately. For more information, refer to the HP Silver Flat Panel Speaker Bar QuickSpec.
Other	**Accessories Included**	VGA to DVI-I cable - connects the graphic card's VGA connector to the monitor's input #1 or 2 (DVI-I analog) connector.
		DVI-D to DVI-I cable - connects the graphic card's DVI-D digital connector to the monitor's input #1 or #2 (DVI-I digital) connector.
	Software	HP Display Assistant Utility makes it possible to adjust displays settings through the PC using two-way communication via DDCI.
		HP Display Lite Saver allows ability to power up and down display at predetermined hours of the day to safe power and backlight life.
		Pivot Pro software from Portrait Displays, Inc. interacts with your PC's native graphics driver to enable seamless portrait screen redraws with a simple mouse-click or keyboard command. Pivot Pro supports 90-degree portrait and landscape views. Language support is available in English, Japanese, French, German, Spanish, Italian, and Traditional and Simplified Chinese.
	User Guide Languages	English
	Warranty Languages	English
	Color	Carbonite/Silver
	VESA External Mounting	Yes (Standard 4 hole pattern, 100 mm)
	Kensington Lock-Ready	Yes

QuickSpecs

HP c8000 Workstation

Technical Specifications - Monitors

	Certification and Compliance		Canadian Requirements/CSA, CE Marking, CISPR Requirements, , Energy Star Compliant, FCC Approval, ISO 13406-2 Pixel Defect Guidelines, Mexican NOM Approval,, MPR-II Compliant, PC2001 Compliant, PC99 Certified, TCO 03 (emissions, ergonomics, environment), TUV-Ergo, UL Listed, VCCI Approvals, Microsoft® Windows® Certification (Microsoft® Windows® 98, Microsoft Windows 2000, and Microsoft Windows XP)
	Compatibility		Compatible with platforms using the VESA standard video modes. Recommended for use with HP products.
	Service and Warranty		Three years parts, labor, and on-site service. 24-hour 365-day 1-800 technical support. Replacement options include 2nd business day on-site service or next business day direct replacement. With direct replacement, HP will ship a replacement display product directly to you. Using the shipping labels provided, return your failed display to HP. Certain restrictions and exclusions apply. For details, contact HP Customer Support.

HP Flat Panel Monitor LP2465	**Panel**	**Type**	24-inch Active Matrix TFT (thin film transistor)
		Viewable Image Area (diagonal)	24 in (60.96 cm)
		Screen Opening (W x H)	20.47 x 12.83 in (52.0 x 32.6 cm)
		Viewing Angle (typical)*	178° H/ 178° V (10:1 minimum contrast ratio)
		Brightness (typical)*	500 nits (cd/m2)
		Contrast Ratio (typical)*	1000:1
		Response Rate (typical)*	8 ms (typical gray to gray)
		Pixel Pitch	0.270 mm
		Backlight Lamp Life (to half brightness)	50K hours
		*Response time 13 ms rise and fall, 6 ms gray to gray.	
	On Screen Display (OSD) **Controls**	**Buttons or Switches**	Input Select, Auto Adjust, OSD Up, OSD Down, OSD Menu Select, Power
		Languages	English, French, German, Spanish, Italian, Japanese, Dutch
		User Controls	Brightness, contrast, positioning, color temperature, individual color control, serial number display, full screen resolutions, clock, clock phase, input selection (includes separate direct access key for dedicated swap between inputs 1 and 2), factory reset

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Technical Specifications - Monitors

Signal Interface/ Performance	**Horizontal Frequency**	30 to 94 kHz (VGA input); 30 to 92 KHz (DVI input) (for modes with pixel clock less than 157 MHz)
	Vertical Frequency	48 to 85 Hz (VGA and DVI input)
	Native Resolution	1920 x 1200 @ 60 Hz (recommended) (native aspect ratio of 16:10)
	Preset VESA Graphic Modes (non-interlaced)	1920 x 1200 @ 60 Hz 1600 x 1200 @ 60 Hz, 75 Hz 1280 x 1024 @ 60 Hz, 75 Hz, 85 Hz 1280 x 960 @ 60 Hz 1152 x 900 @ 66 Hz 1024 x 768 @ 60 Hz, 75 Hz, 85 Hz 800 x 600 @ 60 Hz, 75 Hz 640 x 480 @ 60 Hz, 75 Hz
	Text Mode	720 x 400 @ 70 Hz
	Mac Mode	1152 x 870 @ 75 Hz and 832 x 624 @ 75 Hz
	Sun Mode	1152 x 900 @ 66 Hz
	Maximum Pixel Clock Speed	202 MHz (VGA input); 162 MHz (DVI input)
	User Programmable Modes	Yes, 20
	Anti-Glare	Yes
	Anti-Static	Yes
	Default Color Temperature	6500 K
Video/Other Inputs	**Plug and Play**	Yes
	Self Powered USB 2.0 Hub	One upstream, four downstream ports (located on side of monitor, cable included)
	Input Signal	Two DVI-I (VGA analog and digital) inputs
	Input Impedance	75 ohms ± 10%
	Sync Input	Separate sync (HSYNC/VSYNC); composite sync, Sync on Green
	Video Cable	VGA to DVI-I; DVI-D to DVI-D
	Video Cable Length	5.9 ft (1.8 m)
Power	**Input Power**	Auto-Ranging, 90 to 132 VAC and 195 to 265 VAC; internal power supply, 50 Hz/60 Hz
	Frequency	47.5 to 63 Hz
	Typical Power Consumption	75 watts
	Maximum	< 110 watts
	Power Saving	< 2 watts
	Power Cable Length	6.2 ft (1.9 m)

Technical Specifications - Monitors

Mechanical	**Dimensions** (H x W x D)	**Unpacked w/ stand**	14.6 (min) to 19.7 (max) x 22 x 9.1 in (37.1 (min) to 50.1 (max) x 55.4 x 23.2 cm)
		Unpacked w/o stand (head only)	14.4 x 22 x 3.7 in (36.6 x 55.84 x 9.2 cm)
		Packaged	11.7 x 22.1 x 25.6 in (29.8 x 56.0 x 65.1 cm)
	Weight	**Unpacked**	23.6 lbs (10.7 kg)
		Packaged	23.6 lbs (10.7 kg)
	Tilt Range	-5° to + 25° vertical	
	Swivel Range	-45° to + 45°	
	Height Adjustable	Yes, range 5.1 in (130 mm)	
	Pivot Rotation	Yes	
	Base	Detachable, ships detached	
Environmental	**Temperature – Operating**	46° to 95° F (10° to 35° C)	
	Temperature – Non-operating	6° to 140° F (-10° to 60° C)	
	Humidity – Operating	20% to 80% non-condensing	
	Humidity – Non-operating	5% to 85%	
	Altitude – Operating	+12,000 ft (3,657.6 m)	
	Altitude – Non-operating	+40,000 ft (12,192 m)	
Other	**Accessories Included**	VGA to DVI-I cable - connects the graphic card's VGA connector to the monitor's input #2 (DVI-I analog) connector	
		DVI-D to DVI-D cable - connects the graphic card's DVI-D digital connector to the monitor's input #2 (DVI-I digital) connector	
	Software	Pivot Pro software from Portrait Displays, Inc. interacts with your PC's native graphics driver to enable seamless portrait screen redraws with a simple mouse-click or keyboard command. Pivot Pro supports 90-degree portrait and landscape views. Language support is available in English, Japanese, French, German, Spanish, Italian, and Traditional and Simplified Chinese.	
		HP Display Assistant is a software utility that allows monitor adjustment, color calibration, and security/asset management using the Display Data Channel Command Interface (DDC/CI) protocol of the connected desktop PC.	

Technical Specifications - Monitors

		HP Display LiteSaver feature allows you to schedule Sleep mode at preset times to help protect the monitor against image retention, drastically lower power consumption and energy costs, and extend the lifespan of the monitor.
	User Guide Languages	English, B. Portuguese, French, LA Spanish, Korean, S. Chinese, T. Chinese, Bahasa, Japanese, Danish, Finnish, German, Norwegian, Spanish, Swedish, Greek, Polish, Russian, Slovenian, Turkish
	Warranty Languages	English, Canadian French, LA Spanish, Brazilian Portuguese, Danish, German, Castilian Spanish, French, Italian, Dutch, Norwegian, Finnish, Swedish, Bahasa Indonesian, Korean, T. Chinese, S. Chinese
	Color	Carbonite/silver
	VESA External Mounting	Yes (Standard 4 hole pattern, 100 mm)
	Kensington Lock-Ready	Yes
Options	**HP Silver Flat Panel Speaker Bar - Part number: EE418AA**	Powered directly by the monitor or PC, the Speaker Bar seamlessly attaches to the monitor's lower bezel to bring full audio support to select HP flat panel monitors. Features include dual speakers with full sound range and an external jack for headphones. Sold separately. For more information, refer to the HP Flat Panel Speaker Bar QuickSpec.
Certification and Compliance	Australian ACA Approval, Canadian Requirements/CSA, CE Marking, China CCIB/CCEE Approval, CISPR Requirements, Eastern European Approvals, Energy Star Compliant, FCC Approval, German Ergonomic (TUV and GS Mark), ISO 9241-3,7,8 VDT Guidelines, ISO 13406-2 Pixel Defect Guidelines, Mexican NOM Approval, MIC Requirements (New Zealand), MPR-II Compliant, Nordic Approvals (Nemko, Fimko, Demko, Semko), PC2001 Compliant, PC99 Certified, S. Korean MIC Approval, Taiwan BSMI Approval, TCO 03 (emissions, ergonomics, environment), TUV-Ergo, UL Listed, VCCI Approvals, Microsoft Windows Certification (Microsoft Windows 98, Microsoft Windows 2000, and Microsoft Windows XP)	
Compatibility	Compatible with platforms using the VESA standard video modes. Recommended for use with HP products.	
Service and Warranty	Three years parts, labor, and on-site service. 24-hour, 90-day, toll-free technical support. Replacement options may include second business day on-site service, or next business day direct replacement, at HP's sole discretion. With direct replacement, HP will ship a replacement display product directly to you. Using the prepaid shipping labels provided, return your failed display to HP in the same packaging as the replacement. Certain restrictions and exclusions apply. For details see your product warranty or contact HP Customer Support.	